What is claimed is:

1. A power supply circuit which is connected to a battery having an overcurrent protective device, said power supply circuit comprising:

a capacitor which is connected in parallel to said battery to be charged by said battery; and

a restricting device which restricts an output current of said battery so that said output current of said battery is not interrupted by said overcurrent protective device while said capacitor is being charged with said battery.

2. The power supply circuit according to claim 1, further comprising a voltage detector which detects a terminal voltage across said capacitor,

wherein said restricting device restricts said output current of said battery in accordance with said terminal voltage detected by said voltage detector.

3. The power supply circuit according to claim 2, wherein said restricting device restricts said output current of said battery in accordance with said terminal voltage detected by said voltage detector so that said output current of said battery becomes maximum within a range in which said overcurrent protective device is not actuated to interrupt said output current of said battery to said power supply circuit.

4. The power supply circuit according to claim 2, wherein said restricting device comprises:

a variable resistor via which said battery is connected to said capacitor; and

a controller which controls said output current of said battery by varying a resistance value of said variable resistor in accordance with said terminal voltage detected by said voltage detector.

5. The power supply circuit according to claim 2, wherein said restricting device comprises:

a plurality of resistors connected in parallel via which said battery is connected to said capacitor;

a plurality of switches with which each of said plurality of resistors can be connected to and disconnected from one of said battery and said capacitor; and

a controller which controls said plurality of switches independently of one another in accordance with said terminal voltage detected by said voltage detector.

6. The power supply circuit according to claim 2, wherein said restricting device comprises:

a plurality of field effect transistors connected in parallel via which said battery is connected to said capacitor; and

a controller which controls an ON/OFF state of each of said plurality of field effect transistors in accordance

with said terminal voltage detected by said voltage detector.

7. The power supply circuit according to claim 2, wherein said restricting device comprises:

a field effect transistor via which said battery is connected to said capacitor; and

a controller which controls said output current of said battery by controlling a voltage across a gate and a source of said field effect transistor in accordance with said terminal voltage detected by said voltage detector.

8. The power supply circuit according to claim 2, wherein said restricting device comprises a transistor, wherein a collector of said transistor is connected to a gate of said field effect transistor while an emitter of said transistor is connected to ground, and

wherein said controller controls said voltage across said gate and a source of said field effect transistor by controlling a base voltage of said transistor.

9. The power supply circuit according to claim 8, further comprising:

a plurality of resistors; and

a plurality of switches which are turned ON and OFF so that a base of said transistor is connected to and disconnected from said ground via said plurality of resistors, respectively,

wherein said controller controls said base voltage of said transistor by changing ON/OFF states of said plurality of switches.

10. A power supply circuit which is connected to a battery having an overcurrent protective device, said power supply circuit comprising:

a capacitor;

a first switch provided in a primary path for connecting said battery with said capacitor;

a second switch provided in an alternative path for connecting said battery with said capacitor;

a voltage detector which detects a terminal voltage across said capacitor; and

a charge control device which controls a switching operation of said first switch to intermittently charge said capacitor with said battery via said primary path in the case where said terminal voltage Vc across said capacitor is smaller than a predetermined threshold value;

wherein said charge control device switches said primary path to said alternative path to continuously charge said capacitor with said battery via said alternative path in the case where said terminal voltage across said capacitor exceeds said predetermined threshold value.

11. The power supply circuit according to claim 10,

wherein a duration of an ON state of said first switch in an intermittent charging operation, in which said capacitor is charged intermittently, is shorter than a time necessary for said overcurrent protective device to detect an overcurrent of said battery.

12. The power supply circuit according to claim 10, wherein a duration of an ON state of said first switch in an intermittent charging operation, in which said capacitor is charged intermittently, is shorter than a duration from the moment said battery is connected to said capacitor to the moment an output current of said battery exceeds an overcurrent detection value of said overcurrent protective device.

13. A power supply circuit which is connected to a battery having an overcurrent protective device, said power supply circuit comprising:

a capacitor;

an adjusting condenser connected in parallel with said battery, said adjusting condenser having a capacitance so that when said capacitor is charged with said battery, said overcurrent protective device is not actuated to interrupt an output current of said battery to said power supply circuit;

a switching element with which said adjusting condenser can be connected to and disconnected from said

capacitor; and

a charge control device which controls a switching operation of said switching element to intermittently charge said capacitor with power output from said battery and said adjusting condenser.

14. The power supply circuit according to claim 13, wherein said capacitor is charged with power output from said battery and said adjusting condenser when said switching element is ON, and wherein said capacitor is charged with power output only from said battery when said switching element is OFF.

15. The power supply circuit according to claim 13, further comprising a voltage detector which detects a terminal voltage across said capacitor;

wherein in the case where said terminal voltage becomes one of equal to and greater than a predetermined voltage, said charge control device stops said switching operation of said switching element, and connects said battery and said adjusting condenser to said capacitor via said switching element.

16. A power supply circuit which is connected to a battery having an overcurrent protective device, said power supply circuit comprising:

a first capacitor which can be connected in parallel to said battery;

a second capacitor which can be connected in parallel to said first capacitor; and

a charge control device which controls a charging operation for charging said first capacitor and a charging operation for charging said second capacitors;

wherein said charge control device repeats a main charging operation and a relay charging operation alternately;

wherein said first capacitor is connected to said battery with said first capacitor being disconnected from said second capacitor, in order to charge said first capacitor with said battery in said main charging operation; and

wherein said first capacitor is connected to said second capacitor with said first capacitor being disconnected from said battery, in order to charge said second capacitor with power output from said first capacitor in said relay charging operation.

17. The power supply circuit according to claim 16, wherein said second capacitor comprises a plurality of capacitors connected in parallel.

18. The power supply circuit according to claim 16, further comprising a switching device provided between said battery and said first capacitor,

wherein in said main charging operation, said charge

control device controls a switching operation of said switching device to intermittently charge said first capacitor.

19. The power supply circuit according to claim 16, wherein said charge control device repeats said main charging operation and said relay charging operation alternately until a terminal voltage across said first capacitor becomes one of equal to and greater than a predetermined reference voltage at which an output current of said battery can be prevented from being interrupted by said overcurrent protective device.

20. The power supply circuit according to claim 16, wherein said charge control device performs said main charging operation when said terminal voltage across said first capacitor is smaller than a predetermined threshold voltage, and performs said relay charging operation when said terminal voltage across said first capacitor is one of equal to and greater than said predetermined threshold voltage.

21. The power supply circuit according to claim 16, wherein said charge control device supplies power output from said battery and said first capacitor to a load while performing said main charging operation, and wherein said charge control device supplies power output only from said battery to said load while performing said relay charging

operation.

22. The power supply circuit according to claim 21, wherein in the case where said terminal voltage across said first capacitor is one of equal to and greater than a predetermined reference voltage at which an output current of said battery can be prevented from being interrupted by said overcurrent protective device, in a state where said second capacitor is connected in parallel to said first capacitor, said charge control device connects said battery to one of said first and second capacitors to supply power output from said battery and said one of said first and second capacitors to said load.

23. The power supply circuit according to claim 1, wherein said capacitor comprises an electric double layer capacitor.

24. The power supply circuit according to claim 1, wherein said battery comprises a rechargeable battery.

25. The power supply circuit according to claim 1, wherein said restricting device comprises a microcomputer comprising a voltage detector, a memory and a comparator.

26. The power supply circuit according to claim 4, wherein said variable resistor comprises a plurality of resistors and a corresponding group of switches for switching ON/OFF states of said plurality of resistors.

27. The power supply circuit according to claim 4,

wherein said controller controls the resistance value of said variable resistor from a high resistance value to a low resistance value as said terminal voltage detected by said voltage detector increases.